

	Terryville Fire Department Best Practices	
	<u>Subject</u> Lithium-Ion Battery Fires	BP# 3-15
		Initiated 12/2/2025
	<u>Authority</u> Chief of Department	Revised

A. Purpose

To establish safe and consistent procedures for responding to incidents involving lithium-ion batteries, including fires, thermal runaway events, and hazardous conditions related to electric vehicles (EVs), energy storage systems, and consumer devices.

B. General Information

- Lithium-ion batteries contain various chemistries including LFP, NMC, LCO, NCA, LMO, and LTO.
- These cells store large amounts of energy relative to size and weight.
- Failure can result from damage, overheating, or exposure to fire, leading to thermal runaway — a self-sustaining heat reaction that can result in fire or explosion.
- Toxic and flammable gases may be released during thermal runaway events.

C. Scene Size-Up and Safety

1. Conduct a 360° size-up to determine the extent and involvement of batteries.
2. Wear full PPE and SCBA — smoke and gases may contain hydrogen cyanide, hydrogen chloride, sulfur dioxide, carbon monoxide, and other toxic and flammable vapors.
3. Establish exclusion zones and maintain safe distances due to explosion risk.
4. Identify the type of device or vehicle involved (EV, storage system, tool, etc.).

D. Firefighting Operations

1. Water is the preferred cooling agent — apply large volumes of water to cool uninvolved cells and battery packs.
2. Burning cells will continue to react even when submerged; focus on cooling adjacent areas to prevent propagation.
3. For electric vehicle fires:
 - Direct water streams to the underside where battery packs are located.
 - Cool surrounding cells and prevent spread.
4. Class D extinguishing agents (such as CellBlock) may be used on smaller battery packs when appropriate.
5. Monitor for re-ignition — battery fires may reignite hours or days later due to residual heat.

E. Fire Police Operations

1. Establish traffic control zones to ensure safe access and operations for Fire and EMS personnel.
2. Create and maintain a secure perimeter around the incident based on hazard size and exposure risks.

3. Prevent unauthorized personnel and civilians from entering hazardous areas.
4. Assist with crowd control and maintain open pathways for emergency vehicles.
5. Coordinate with law enforcement when extended or expanded traffic closures are necessary.

F. Post-Incident Considerations

1. Do not move damaged or overheated batteries until they are cooled and stable.
2. Coordinate with the responsible authority or manufacturer for disposal and safe handling.
3. Notify the Fire Marshal's Office for investigation and follow-up.
4. Report all lithium-ion incidents to the Training Division for data collection and review.

G. References

- Suffolk County Fire Academy Training Bulletin 25-11
- NFPA 855: Standard for the Installation of Stationary Energy Storage Systems
- UL 9540A Test Method for Evaluating Thermal Runaway Fire Propagation